



## ECONOMIC OPPORTUNITIES



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My experience with the Diablo Trust has convinced me that family ranching is the best hope for the rangeland of the Southwest. If they are driven out, I believe much of this land which I love will be either allowed to deteriorate through erosion and other symptoms of death or turned into senseless subdivisions.

*Norm Wallen, Diablo Trust*

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## VALUE ADDED BEEF

**R**anchers are among many in the agricultural business that provide a basic resource to the country's food supply, but do not create the final product from which the majority of profit is generated. Many agricultural businesses have been taken over by large corporations which take a resource through all stages of production using economies of scale to consistently earn a source of revenue. The story of the Western rancher, however, is unique in this situation as the cost of production has increased, the animal units that can be sustained has decreased, and the end product price has remained fairly constant over the last forty years. Ranchers continue to struggle with the ability to maintain grazing allotments in accordance with federal and state regulations, the concerns of environmental and wildlife protection groups, in addition to a long term drought especially in northern Arizona. Coconino County has seen several large ranches convert from agricultural use to unsubdivided land developments of 36 to 40 acre ranchettes, which permanently alters the appearance and character of landscapes throughout the County.

In an attempt to make the ranching business more economically stable, a few progressive groups have worked (on a smaller than corporate scale) to not just raise beef for feedlot production, but take the product all the way to the finish line. As Americans become more aware of what they eat, where it comes from and how it is produced, ranchers and farmers have found a way to direct-market their products. Some have pursued direct-marketing on their own on a small scale within their community, while others have created co-ops of producers that have had success on a large scale. These examples show that the ability to generate higher revenues from beef is possible on a smaller scale, but several variables directly impact the ability of a rancher to achieve success. The process of direct-marketing is not merely limited to beef, but could also include sheep and goats, as well as

other products that may be grown or raised on the ranch. No matter what route is taken and what resources are available, this approach to adding value to an existing product takes a wealth of knowledge, energy, creativity, and commitment. There are many resources available that have information regarding the production and marketing of niche products.

### Examples

There are a number of examples of the different experiences of direct-marketing projects specifically focused on the production of beef. A local effort that was undertaken by Babbitt Ranches serves as a model for a new approach to direct-marketing in northern Arizona. This local effort experienced limited success even with a number of constraints that affect this area including processing and packaging. Other ranchers have combined their efforts by creating a co-op to save their ranching heritage in Oregon and increase profits for future generations. These ranchers have modeled their business operation after a Japanese form of enterprise where several businesses combine together to have more control over all aspects of production. There are also a number of small individual ranches that direct-market their products on a smaller scale with substantial success. Each of these producers has found a unique way to communicate with their consumers and provide exceptional products.

Several years ago the Babbitt Ranches started selling beef products locally in an effort to generate additional revenue. Their products were limited strictly to frozen hamburger patties and beef jerky. The hamburger patties were successful and generated substantial sales primarily from local Basha's Food stores. When the Babbitt Ranches began this process they contacted a local natural food store that agreed to sell the frozen hamburger patties. However, by the time the product was available the store had changed its policy to sell only fresh meat excluding all frozen products. Another distributor was located making the frozen meat portion of the operation a success. The beef jerky portion of the business was a much more difficult endeavor. In order to be placed in stores (convenience and grocery) the product must go through a distributor. The competition in this market proved too difficult to continue this portion of the operation. Eventually the frozen patties were discontinued due to increasing competition in this niche market.

Oregon Country Beef™ is the brand name for a group of Oregon ranchers who market beef products together to maximize proceeds back to the individual rather than having the organization itself acquire capital assets. The process is market-driven and producer-controlled from start to finish. All beef cattle are under the direct ownership and stewardship of the individual co-op member. The brand name does not carry beef from traders or outside sources in order to supplement their production. All parts of the meat production are planned out in advance so that a supply of meat is available year round and ranchers can rely on a set price when it comes time to bring their cattle to the feedlot. The cooperative is made up of 40 family ranches caring for approximately 33,000 mother cows which graze on approximately 2.5 million acres of central and eastern Oregon rangeland that is unsuitable for crops. To assure quality and consistency each ranch takes turns placing 800 pound feeder cattle in a common feedlot for a 3 to 4 month finishing. These animals are then processed in a USDA plant.

### Branding Day on the Flying M







Ervin's Natural Beef™ is run by Will and Jan Holder of Safford, Arizona. In an attempt to make their small ranch operation solvent they pursued a direct-marketing approach that eliminated the middle man. They expanded their market from their hometown to the larger metropolitan areas of Tucson and Phoenix and local organic buying clubs. They have produced promotional materials on "How to Direct Market" beef. They strongly support developing a "niche" in the marketing plan.

Another smaller scale operation is a ranch direct program in Virginia run by Joel Salatin who has written several books on direct-marketing and sustainable agriculture. Mr. Salatin has a unique approach that can overcome many of the obstacles that direct-marketers can face in terms of processing and packaging by selling the beef live to the consumer, which they have processed elsewhere. However, this process will not work for larger scale production.

### Product

When developing a direct-market product it is important to understand who the consumers will be and exactly what they will need. There are a number of ways to distribute a locally produced product within a community. Farmers markets, food co-ops/buying clubs, and community supported agriculture (CSA's) all give the rancher more flexibility in offering products to the public. When producing for local grocery stores and restaurants, the consumers are less flexible and expect a certain type and standard of product. To develop a successful direct-marketing program all of these consumers may be involved.

Fresh versus frozen appears to be the most significant question when direct-marketing beef. While the taste of the beef is relatively unaltered by the freezing

process, some consumers and distributors will not accept frozen products (generally natural food/upscale grocery stores and high-end restaurants). Frozen products are easier to produce and regulate. Fresh product is more difficult to produce in terms of timing, supplies, processing, and distribution. It is important before embarking on a direct-marketing project that the consumer's needs are understood in terms of amount of product, type of product, and timing.

It is necessary to have someone knowledgeable about the range of products that can be produced including meat cuts and uses. The operations discussed above show that it is possible to sell certain products only or to increase the creativity for selling just about everything that can be used from the beef source. Of course the more products that are created the more difficult the production and the more knowledge is required, not just of the cuts of meat that are possible, but how to cook those products. In order to market a product successfully it may need to be displayed in a fashion that is appealing to the consumer such as providing easy recipe ideas or manipulating the product by adding something to increase appeal.

### Marketing & Distribution

The most important element to any direct-market business is its marketing plan. The direct-market product must find a “niche” market—consumers willing to purchase a similar product at a premium price because it is produced in a socially and environmentally conscious way. The fact that a product is locally produced could be enough reason for a local restaurant to purchase products. The Center for Sustainable Environments at NAU has been supporting the direct-marketing of products by local ranchers and farmers for some time and has created a label Canyon Country Fresh™ which can be used by local producers in a direct-marketing project. The Center for Sustainable Environments is encouraging consumers to buy locally through a marketing campaign. This campaign, while not specific to the individual products available, is really opening the market for these products. This campaign is one large step forward for any rancher or farmer wanting to direct-market a product.



There are a number of ways that beef products could be sold to the public. There is always the potential for ranchers to set up sales on-site similar to Young's Farm in Dewey, Arizona. They not only sell products but also provide entertainment on a large scale. This model could be refined in order to reduce the impact on the ranchers. Sales could be combined with other tourist activities that could occur on the ranches. Farmer's markets present a possible alternative for the sale of beef products, however it can be time consuming and is more successful when ranch representatives themselves sell the product. Farmer's markets are generally seasonal events, but may be a way to simply get out the word about the product and its availability. There are a number of other options such as food co-ops, Community Supported Agriculture (CSA), and buying clubs that may purchase locally produced beef. All three currently occur within the Flagstaff area. There is also the potential to sell directly to local restaurants and natural food stores. Mail order/internet sales within and outside of Arizona are a potential provided a USDA inspected plant is used.

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The Diablo Trust RPA is about protecting the landscape's intrinsic ecological and economic values. It is about land, but it is also about community and productivity. Ranching is one of the few economic activities that produces food by keeping a landscape wild, diverse and resilient. The Canyon Country Fresh network of restaurants and markets is eager to assist ranchers in the RPA with marketing the heritage value and conservation benefits of the way they produce their beef.

*Gary Paul Nabhan, PhD.*

*Center for Sustainable Environments*

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Distribution needs and costs will vary greatly depending upon the size of the market area and the type of product provided. There are third party distributors which greatly increase the cost of the product. They are one of the middlemen that direct-marketers may want to avoid in order to keep the product reasonably priced. However, this means more work for the rancher in terms of keeping in touch with the consumers and their schedules while trying to balance deliveries. This process becomes even more complicated when consumers are requesting a fresh product.

### Niche Markets

There are a number of ways in which a rancher can market a product that makes it special and unique in order to get a consumer to pay a premium. The commodities industry quite frequently uses labeling to promote products. The label makes the beef appear to be above average in standard. However, it is the same grade of meat sold in other national chain supermarkets which consist of select or above. There are regulations regarding labeling so the commodities industry has to be much more ambiguous about their products in order to truthfully market them.

The rancher can provide a meaningful label and marketing program that not only describes the product but how it is raised and how the ranch land is maintained. Other niches to consider could include heritage breeds or organic or grass-fed beef. Of course, in order to consider these niches, that is exactly what has to be produced.

Heritage breeds are unique, because many have been brought back from near extinction and have a story that intrigues the customer. Anderson Ranch in Texas direct-markets Criollo Beef which it represents as the first cattle brought to the new world by the Spanish and is considered a “native cattle.” In order to sell a type of beef that may not be well known it is important to provide detailed information about why this particular beef is special.

Grass-fed beef is another label that has become attractive to consumers. This beef can have fewer calories than grain-finished beef, and it is reported to contain higher levels of Omega-3 fatty acids and other vitamins. This type of information appeals to the more health conscious consumer. Grass-fed beef is harder to produce year round and may require moving animals to different locations throughout the year. The organic label, which is also highly sought after by consumers, is subject to government defined standards. The cattle must be maintained in smaller regulated areas and everything that is consumed by the cattle is scrutinized. Other labels that would help direct-market are chemical-free, sustainable production methods, locally-produced, from a family farm, and so on.

### Local Constraints

The lack of meat processing facilities has been a considerable constraint to direct-marketing meat in northern Arizona. In 2005, the closest processing facility is in Chino Valley, approximately 100 miles from Flagstaff, and is a state licensed facility. The facility has just completed an expansion and can kill up to 15 large animals in a day and can process up to 12 such animals in a week. They have freezer storage space for up to 35 animals. Standard hang time is between 12 and 14 days, but the operator expressed the possibility of longer hang times if needed. Arizona state



meat inspections follow the same rules and regulation as federal USDA inspections. The only difference between the two is that a state inspected plant may only sell products within Arizona. A USDA inspection would allow product sales to expand out of state. Processors on the smaller scale may be reluctant to attempt to have USDA inspections due to a more complex process.

Another feature that the USDA process adds to the marketing of beef is the grading process. The grading of meat such as prime, choice or select has nothing to do with the inspection process, but rather aids in the marketing of beef. While most consumers are aware of these grading standards when purchasing meat in a local grocery store, it is unlikely that one could identify the grade of meat available. The consumers that appear to pay much closer attention to grade standards are restaurateurs who often label grades of meat on menus and may alter the price of a meal based on grade. It is possible for a USDA grader to come and grade meat processed at a state plant, but it can be extremely expensive as the price is set per grade, per animal.

The location of the current state-licensed facility may also pose a constraint to some ranchers in northern Arizona. A processing facility located closer to the ranches would increase the profitability of direct-marketing beef and would create a better opportunity for producers to provide a fresh product. While the location of the existing state inspected facility is close enough to use for a direct-marketing project, it has limitations on the amount of animals that can be processed. This processor appears to be willing to grow with the direct-marketing projects in the area, and this represents a good first step in pursuing a local meat product. It is unlikely that a direct-marketing project will start off with a large quantity of animals as a consumer base would need to be developed as well as a product reputation.

Another constraint that could affect a direct-marketing project is the need to expand the local market. In order to achieve success a rancher may need to seek out a broader market which could extend beyond the northland areas into Phoenix. The population base alone would easily support a direct-market product. There are a number of farmer's markets and other outlets that could be pursued in other areas. However, this will increase distribution costs, but the profit margin may be beneficial enough to support such an expansion. There is always the ability to expand the market through internet and mail order sales, but without USDA inspection, these sales would be limited to Arizona.

### Planning & Zoning Issues

There are a few zoning issues in relation to pieces of the whole direct-marketing package that would need to be addressed if established within the County. A successful direct-marketing project would depend greatly on the resources needed to process and package the meat. Prior to processing, the cattle (or other meat source) must be finished, which generally occurs on a feedlot also known in zoning terminology as a concentrated animal feeding operation. Lastly, it could be possible for a rancher to pursue on-site sales of products developed on the ranch and within the region.

The most significant issue would be the development of a meat processing facility. The *Coconino County Zoning Ordinance* allows such a facility in the industrial zone under a conditional use permit. There are currently no such facilities



(top) Roundup on Anderson Mesa 1979.  
(above) Cows crossing Diablo Canyon in heavy snow.

## VALUE ADDED BEEF

### GOAL

Maintain the historic ranching land use base by expanding the local market potential for beef raised in northern Arizona.

### POLICIES

The County will work with meat processors to identify locations that will provide opportunity for local ranchers as well as ensure the protection of adjacent residential areas.

Meat processing plants shall be evaluated on the size of the operation, employee base, and feed lot operations.

Feedlot operations should be located to ensure that adjacent residential areas are not impacted by odor, flies, or noise.

The County will work with ranchers who wish to promote marketing and sales of locally produced items on-site to ensure that adequate facilities are provided for members of the public.

under County jurisdiction. The intent of a conditional use permit is to make the project site-specific to ensure that adjacent parcels or properties are not adversely affected. In order to provide a facility within closer proximity to the ranches an area would have to be rezoned for such a use. Rezoning is based on compliance with the *Comprehensive Plan*. A processing plant location is not only dependent upon zoning, but also the resources needed to support its operation. Water plays an important part in processing, and would need to be readily available for use. Employees will be needed to operate the plant.

Feedlot operations are permitted with the issuance of a conditional use permit within the agricultural zones currently covering most ranches within the County. These operations would be reviewed by the County to ensure that adjacent residential areas would not be adversely impacted. The concern with feedlot operations is the dense concentration of animals within a small area increasing odors, flies, and noise. Most ranches have ample space to maintain such an operation.

An on-site sales operation would require improvements to support public visits to the site. The zoning requirements would vary depending upon the scale and development. Sales associated with temporary uses could be approved through a conditional use permit while more permanent operation/facilities could require a rezoning. Direct-market sales may not be enough to attract the numbers of consumers to the site, but in combination with other possible tourist uses may benefit each use.

### Next Steps & Contacts

The first step in pursuing a direct-marketing project would be to develop a business and marketing plan. This plan would outline the finite details of pursuing a direct-market project. How the product will be developed and under what standards should be identified. For example, the cattle would be primarily grass-fed with a limited feedlot operation in order to provide a consistent product. The development standards will help set out the cost of producing and finishing the cattle which can then be incorporated into the cost for processing and packaging as well as travel and distribution costs. Whether or not the rancher will hire additional staff to assist in the operation should be considered. As these details become more defined, it is easier to set a price based on the necessary profit margin. The ranchers may want to approach the economic and marketing departments at NAU to discuss the potential of a class project for the development of a business plan in order to keep costs low in the initial phases of investigation.

There are many resources that have information about direct-marketing beef products. Locally the ranchers could work with the Center for Sustainable Environments at NAU which has already offered assistance with marketing, and has information on consumers wanting to purchase a locally produced product. This would be an important first step in understanding what the local market is expecting. The appendix to this document lists current direct-marketing projects and contacts who may be able to share their experiences with prospective producers.





*Yeager Lake on Anderson Mesa.*

## TOURISM, RECREATION & EDUCATION

**R**anch-based tourism, recreation, and educational activities collectively represent great potential as an economic development tool that could contribute to economic diversification and long term sustainability of ranching operations. Tourism and travel is a significant industry, and the segment of the tourism industry that is based on the natural environment, or ecotourism, is the fastest growing segment of the tourism market. The market includes both domestic and foreign travelers who are looking for travel experiences that combine cultural and natural resource elements, as well as the conservation of those resources for the long term.

The culture of ranching, along with the natural resources and environmental qualities of the ranch lands, can provide opportunities for a wide range of potentially attractive tourism-related uses. Ranching has been called the “mythological heart of the West” and there are large numbers of people who are interested in experiencing ranch activities first hand. While there are numerous examples of traditional dude ranch resorts that offer a variety of recreational experiences from horseback riding to tennis, there is also a trend toward vacation ranches that offer visitors the opportunity to experience life at a real working cattle ranch.

This section of the plan explores a variety of potential tourism, recreation, and educational opportunities that could be compatible with and complementary to working ranch operations, and specifically discusses a number of case studies of ranches that have successfully pursued ranch-based commercial enterprises of this type. In addition, the plan identifies certain regulatory issues and permits that would be applicable to such activities, as well as a number of resources and consultants that are available to assist ranchers in pursuing their economic goals and ranch preservation.

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Experiential tourism is a marriage of economic development and conservation, where both, often seen as competing interests, are in fact inextricably linked.

*Fermata Inc. web site*

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(top) Diablo Trust “Artist Day on the Land.”

(middle) Hot air balloons.

(above) Line camp.

## Tourism, Recreation, Educational Opportunities

The pursuit of commercial tourism and recreation-related enterprises is clearly not every rancher’s cup of tea. It takes a certain temperament and disposition to deal with these types of service oriented businesses that are very different from ranching in many ways. However, for those ranchers who are so inclined, opportunities abound for taking advantage of the market demand for land-based tourism and recreation, as well as cultural and educational experiences that can be compatible with and sometimes directly related to ranching operations.

For those ranchers who are not inclined to operate such enterprises themselves, there may be opportunities for licensing certain activities on the land that would be operated by independent concessionaires. The obvious down side of licensing such uses is that the licensee receives the greater economic benefit compared to the rancher. Another concern is that concessionaires may not have the same concern for the land as the rancher.

Examples of ranch-based tourism, recreation, and educational uses can be further categorized into the following types:

- **Guided Tours/Field Trips** can focus on various themes including birding and wildlife, archeology or prehistoric rock art, astronomy, photography or art on-the-land, scenic tours, hikes, mountain biking, guided hunts, and others. The most appropriate themes to pursue depend primarily on the type of resources available, but also on the personal interests of the ranchers as well as an economic analysis that would assess the potential market demand.
- **Equestrian Activities** can include anything and everything horse-related from horse boarding and training to commercial breeding to guided trail rides to roping events and rodeos. In addition, a more specialized focus could include youth horseback riding camps, women’s riding retreats, or guided family pack trips.
- **Lodging** on the ranch can include a wide range of facilities from the traditional dude ranch operation providing full-service family vacation programs to a work oriented ranch-stay program offering opportunities to experience the life and work of a real working cattle ranch. Other lodging opportunities could include individual cabin rentals such as remote line camps, or more formalized bed-and-breakfast operations at ranch headquarters. A somewhat unique approach to lodging accommodations could include yurts, a circular tent-like structure originating in Mongolia. Yurt and cabin rentals have been successful at Lyman Lake State Park, and the Arizona State Park system is planning on adding yurts and cabins at other state parks. Lodging can also be combined with other educational or specialized focuses such as retreat facilities available for business seminars, organizational team-building, health, art, or other special topics.
- **Festivals/Special Events** could be offered with a focus on traditional Old West-style chuck wagon cookouts, cowboy poetry or music festivals, antique tractor shows, mountain man rendezvous, or other such events. Some guest ranches have even had success with certain nontraditional events and activities such as hot air ballooning.
- **Cultural/Educational Institutions** could potentially include a museum or cultural center devoted to one or more themes such as the history of ranching,



Native American culture, astronomy, archeology, geology, paleontology, alternative energy, Route 66, or the history of the transcontinental railroad. Other ranch-based educational institutions could include backcountry education programs similar to the Outward Bound program, Adventure Discovery, or the National Outdoor Leadership School. Programs for at-risk youth could fit in this category as well.

- **Other Uses** that do not fit into any of the previous categories include shooting ranges and off-highway vehicle facilities. Both of these examples are uses for which there is great demand, but which are difficult to site because of potentially negative effects on surrounding properties. Ranch lands may include suitable sites where a shooting range or off-highway vehicle facilities could be situated without nearby neighbors and without the typical conflicts that arise from such use. A shooting range in particular has long been identified as a need in northern Arizona, and with a proposed location near Bellemont eliminated from consideration, there may be an opportunity to investigate other options in the Diablo Canyon RPA, possibly in partnership with the Arizona Game and Fish Department.

These examples do not represent an exhaustive list by any means, but represent examples of ranch-based enterprises that have been pursued by ranchers at a variety of locations throughout the country and which may have some applicability in northern Arizona. Whether these specific uses or similar uses could be successfully pursued here largely depends upon the personal interests and enthusiasm of the ranchers to pursue them.

### Ranch-Based Tourism Case Studies

There are numerous examples of ranch-based tourist enterprises that have successfully pursued economic development opportunities as a strategy for maintaining viable ranching operations. While some have switched their focus entirely to tourism-related pursuits, others have simply augmented their livestock operations with compatible commercial enterprises while maintaining a working ranch. The following are just a few examples. Additional contact information is provided in the appendix.

The **Anderson Ranch**, located in Hemphill County in the Texas panhandle northeast of Amarillo, offers guided birding tours on their ranch along the Canadian River. The owner of the ranch entered into a partnership with the town of Canadian, Texas to pursue tourism as an economic development strategy. Together, they formed a nonprofit organization and hired a consultant to develop a business plan. The ranch conducts guided birding tours for groups of 15-20 people at a rate of \$50-60 per person. The tours are conducted by the ranch owner or a ranch employee. No accommodations are available on the ranch, but are available in the nearby town of Canadian. The ranch also markets value-added beef products.

The **Elkhorn Ranch**, located in the Altar Valley in Pima County southwest of Tucson, is a more traditional vacation dude ranch. It is a family-run operation established by the Miller family in 1945 as a winter vacation destination to complement their summer vacation ranch in Montana. The Elkhorn offers a traditional dude ranch experience with a wide range of activities including horseback riding,



(top) Camp cookout.  
(middle) Cowboy music festival.  
(above) Old Route 66 on the Bar T Bar.

birding, hiking, tennis, swimming pool, cabins, buffet-style meals, and Western-style cookouts all in a classic Sonoran Desert environment.

**Equitours**, located on the **Bitterroot Ranch** in Fremont County, Wyoming southeast of Yellowstone National Park, offers trail riding and pack trips on the ranch as well as international horseback riding vacations on six continents. Their international trips include palace-to-palace rides in India, bed-and-breakfast rides in Ireland, and horseback trips in France staying in historic chateaux on the Loire. Equitours was founded by ranch owner Bayard Fox 30 years ago on the Bitterroot Ranch. The Bitterroot remains a working ranch in addition to offering dude ranch accommodations and equestrian vacations.

The **King Ranch**, located in Kleberg County, Texas southwest of Corpus Christi, is an economically-diversified agribusiness corporation involved in cattle ranching, feedlot operations, farming, citrus groves, commodity marketing and processing, recreational hunting, retail, and tourism. Their tourism enterprises include guided nature tours focusing on birding and south Texas wildlife. They offer a variety of birding tours for groups or private customized tours for specific interests including wildlife, native plants, photography, history, and agriculture. In addition, the ranch operates a retail outlet and visitor center.

The **Rock Art Ranch**, located in Navajo County southeast of Winslow, features prehistoric rock art and Western-style cookouts. Prehistoric petroglyphs are located along a quarter mile stretch of canyon where visitors can hike into the canyon or view from an observation deck on the rim. Accommodations are available on the ranch with steak cookouts and cowboy music provided. The ranch was formerly part of the historic Hashknife Ranch and contains the last known bunkhouse from the Hashknife.

The **Grand Canyon West Ranch** is located on the Hualapai Indian Reservation in Mojave County, Arizona. The ranch represents an economic development strategy of the Hualapai Tribe. In addition to being a working cattle ranch, the Tribe offers Grand Canyon tours with helicopter access from Las Vegas, horse-drawn wagon rides, and Western-style barbecues.

The **Williams Family Ranch** in Wickenburg, Arizona bills itself as a real working cattle ranch, "...not a fancy dude ranch." They offer three-day to week-long vacations for folks who want to experience the life and work of a cowboy. The ranch accommodates guests from September through May, and activities can include moving cattle to new pastures, round-ups, and branding. Other activities include cowboy crafts, trail rides, and hunt and pack trips in the Hassayampa River Wilderness.

The U. S. Forest Service's **Arizona Rooms With a View** program offers cabin rentals at seven locations on four different national forests in Arizona. Although this is not a ranch-based program, it is included as a case study because of its potential similarity to the rental of ranch line camps. The Forest Service program includes seven cabins formerly occupied as fire guard stations and other administrative sites located in a wide variety of habitats from upper Sonoran grasslands to mountain meadows to mixed-conifer forests to creek-side riparian areas. The various settings provide opportunities for wildlife viewing, hiking, mountain biking, cross-country skiing, hunting, fishing, and solitude. The Forest Service has experienced a positive response from the public and respectable occupancy rates with a minimal amount of advertising.







*Bar T Bar horses at Dog Valley.*

### **Regulatory Issues/Permits**

In Arizona, ranching is statutorily exempt from county zoning authority. However, other types of commercial uses located on ranches would be subject to county zoning jurisdiction. Given the nature of many of the potential tourism and recreational uses discussed in this plan, it is likely that regulatory approvals would be required from several levels of government, including various county, state and federal agencies.

In Coconino County, virtually all ranch lands are located in the General Zone, which allows very low density residential development, as well as agricultural-related uses. Certain recreational uses, educational facilities, and limited quasi-commercial uses are possible in the General Zone with approval of a conditional use permit as specified by the *Coconino County Zoning Ordinance* (Sec. 9). Other potential ranch-based commercial uses may require rezoning to a special purpose zone such as the Resort Commercial (RC) Zone.

The County Building and Safety Division administers building codes through the issuance of building permits and building inspections. The Environmental Services Division of the County Health Department regulates on-site wastewater disposal systems, as well as commercial food service operations and lodging facilities serving the public.

At the state level, the Arizona Division of Health Services has regulatory oversight of youth camps, and other state agencies could be involved in various





*Bar T Bar winter range.*

ranch-based enterprises. For example, any activities occurring on state trust land would require the appropriate commercial lease permits from the State Land Department, and wildlife-related activities would require applicable permits from the Arizona Game and Fish Department. Likewise, any commercial activities occurring on national forest land would require special use permits from the U.S. Forest Service.

The specific permits and regulatory approvals for any given use should be identified through the process of developing a business plan or economic feasibility study for the proposed enterprise. The Coconino County Community Development Department can provide direction in this regard, and typically identifies applicable regulatory requirements as part of the zoning review process on private and state lands.

### **Tourism Development Resources and Consultants**

There are a number of resources and consultants available to assist landowners in the development and implementation of business plans in the area of culture- and resource-based tourism. In addition to government agencies such as the Arizona Office of Tourism, charged with promoting tourism development in the state, there are private consultants who specialize in ranch land preservation, ecotourism, and nature-based experiential tourism. Such consultants offer a wide range of services including assistance in site assessments, economic feasibility studies, and the development of business plans. The following are a few examples of resources and consultants that could assist the ranches of the Diablo Canyon RPA in pursuing tourism development strategies described in this section of the plan. Additional contact information is included in the appendix.

The **Arizona Office of Tourism (AOT)** is responsible for promoting Arizona as a premier tourist destination. It accomplishes that mission through strategic planning, advertising and media relations, research and grant administration, and other tourism development programs. The Tourism Development Division promotes rural tourism development programs in cooperation with the Arizona Council for Enhancing Recreation and Tourism (ACERT), and promotes niche marketing in several categories with distinguishing features unique to Arizona. The AOT has contracted with the Arizona Hospitality Research and Resource Center (AHRRC) at NAU to serve as a clearinghouse for tourism and hospitality research.

The resources available through various AOT programs could be applied to the development of economic feasibility studies and business plans for a variety of ranch-based tourist enterprises. Three of the five niche categories that AOT has identified could be applicable to tourism development in the Diablo Canyon RPA, including Culture and Heritage, Nature and Adventure, and Resorts to Ranches. In addition, the Research Library at NAU's AHRRC houses research reports and data including statistical information on Arizona visitors and the tourism industry.



The **Institute of EcoTourism** (IOET) in Sedona is “...committed to solving environmental problems by promoting environmentally conscious tourism, sustainable community development and experiential, place-based environmental education (IOET website).” The IOET recognizes that ecotourism and nature-based tourism is today’s fastest growing market segment, and the Institute has developed educational programs and conservation models for environmentally conscious tourism and sustainable business operations. The IOET works closely with members of the travel industry to promote sustainable ecotourism operations by providing training and information on best-practices. In addition, the IOET offers a variety of field-based seminars through their Explorer’s Club, and there may be some opportunity for partnering in such efforts between the Institute and the ranches of the Diablo Canyon RPA.

One of the most promising business consultants working in the field of nature tourism is an organization known as **Fermata, Inc.** based in Austin, Texas. Fermata has over 30 years of experience in the business of wildlife watching, conservation programming, and nature tourism development. The firm works with various government agencies, organizations, communities, landowners, and individuals interested in developing and implementing nature- and culture-based experiential tourism strategies. A wide range of services is offered including strategic planning, economic impact studies, feasibility studies, marketing plans, fund raising plans, proposal development, workshops on resource-based tourism, resource-based tourism development planning, nature tourism training, guide and site manager training, and design of interpretive materials.

Another consultant specializing in the preservation and stewardship of ranch lands is the Sheridan, Montana-based **Ranches of the West**. Self-described as “Consultants to and for Recreation and Agricultural Enterprises,” the firm’s stated mission is “to create and maintain sustainable resources (Ranches of the West website).” Their fundamental goal is to assist owners in achieving a blend of economics, ranch preservation, agricultural operations, and recreational enjoyment. The firm recognizes that each ranch has its unique characteristics and qualities that must be considered along with the personal goals of the ranch owner. Services include the creation of a complete business plan to address financial management, fisheries, habitat, agriculture, livestock, conservation easements or other preservation devices, and in some cases, limited resource-oriented development and construction planning and implementation.

### Next Steps

There is clearly a wide range of options in the area of tourism and recreation that could provide an economic means of paying for conservation and stewardship of the ranches’ resources and contribute to their economic sustainability. If the ranches decide to pursue this possibility, the next steps could include initial discussions with a tourism consultant who specializes in ecotourism development. An ecotourism development consultant could begin with an initial inventory of resources to help identify special natural and cultural attributes that could be developed in an economically beneficial and environmentally sustainable way. The initial resource inventory would then be followed by further strategic planning, economic feasibility studies, marketing plans, and finally a complete business plan.

## TOURISM RECREATION & EDUCATION

### GOAL

Encourage ranch-based tourism, recreation, and educational enterprises that are compatible with and complementary to working ranch operations.

### POLICIES

The County supports environmentally conscious tourism that promotes the conservation of cultural and natural resources for the long term.

Approval of tourism-related uses shall address minimum requirements necessary to promote the public health, safety, comfort, convenience, and welfare. Typical public health and safety requirements, e.g. access, parking, sanitary facilities, emergency response, etc., shall be considered in the context of the scale and character of the proposed use.

The County shall help facilitate interagency coordination in the review and permitting of proposed ranch-based tourist enterprises in order to ensure that all applicable agencies’ concerns and requirements are addressed.

New structures or other development associated with tourism-related uses should incorporate appropriate “Western” or rustic design features that reflect the cultural context and heritage of the ranches. Typical urban development requirements may be modified or relaxed to achieve a ranch-appropriate design.



*Timber resources on the ranches' national forest grazing allotments.*

## WOOD PRODUCTS

Commercial wood products have historically played a somewhat minor role in ranch economics, primarily through the sale of fuelwood as a byproduct of range improvement or restoration treatments. Piñon and juniper (PJ) fuelwood sales have been the principal commercial wood product generated by the ranches. Fuelwood production and sales, however, has generally not proven to be a commercially viable business due to high labor costs and low profit margin.

This section of the plan discusses the availability of raw materials that may result from range and watershed improvement projects; products that could be produced with existing or emerging technology; constraints and obstacles that would have to be overcome; and related regulatory and permitting issues that would be applicable to the development of a wood products industry in the RPA region.

### Resource Availability

Various range management practices involve the removal of wood materials that have potential economic value. PJ thinning projects are undertaken to open the woodland canopy to enhance browse and restore grasslands, restore springs, and recreate savannah conditions (treed grassland) where appropriate. Depending on the methods used, the costs of such treatments vary, but can be substantial. Ideally, a decent economic return from wood products could help offset the costs and pay for additional treatments.

The ranch lands are divided into six biological zones each containing characteristic plant and animal communities (*Executive Summary of the Diablo Trust Range Management Plan and Proposed Action*, p.13). The potential for utilization of



timber and woodland species for wood products would be limited to the west and west-central portions of the RPA (i.e. Zones I, II and III). With the exception of Zone III, most of this area is national forest land.

The high elevation area identified as Zone I (6,700 to 7,600+ feet) is located in the far west and southwest end of the RPA, and is dominated by ponderosa pine, Douglas fir, white fir, aspen, maple, oak, and alligator juniper, with some fingers of PJ on the east side. Approximately 88% of Zone I is on national forest land.

The next biological zone to the east (Zone II) is slightly lower in elevation (6,200 to 7,660 feet) and dominated by PJ and western wheatgrass. The northern half of Zone II is open grassland with some PJ invasion. The southern half was once open savannah, but is now dominated with dense stands of PJ with little understory vegetation. Approximately 98% of Zone II is national forest.

Zone III extends to the central portion of the study area (5,600 to 6,300 feet) from below the rim of Anderson Mesa to the north and east. Vegetation is a mix of PJ woodland, grassland, and browse. The previously open savannah is now dominated by dense stands of PJ with closed canopy and little understory. Most of Zone III is state and private land.

Further to the east, Zones IV and V are the lowest in elevation and the driest portions of the RPA. Vegetation is browse-dominated grassland and grass and isolated shrubs. Due to a lack of woodland and forest vegetation, these areas are not applicable in the discussion of wood products. Zone VI, which includes riparian areas within all five other biological zones, may contribute to the wood products resource base where trees would be removed for watershed restoration purposes.

The forest and woodland species of ponderosa pine, piñon pine, and juniper are the most prevalent species and therefore the most likely to be utilized for commercial purposes. Historically, from the late 1800s through the 1980s when there was a large-scale wood products industry in the region, ponderosa pine was the most predominant commercial species coming off the Coconino National Forest. PJ has less commercial potential, but has traditionally been a large part of the local fuelwood market.

### Commercial Wood Products

Potential wood products range from those requiring minimal processing, such as fuelwood and roundwood (i.e. logs, poles, fence posts, etc.), to value-added products requiring more involved manufacturing processes. Some products, such as manufactured fireplace logs and wood/plastic composites can be manufactured from various species. Other products such as dimensional lumber, laminated beams and other structural grade products would be limited to ponderosa pine or other large conifers. A biomass fueled electrical generating station could potentially use any type of woody biomass regardless of species.

The Greater Flagstaff Forests Partnership (GFFP) has recognized the need to promote the commercial utilization of small diameter wood in order to help facilitate forest restoration and fuels reduction projects in the greater Flagstaff area. Toward that end, the GFFP retained an engineering consultant to evaluate small-log manufacturing technologies, products, and markets and the feasibility of establishing a small-log processing operation in the area. Mater Engineering of Corvallis, Oregon submitted a final report on this issue to the GFFP in July, 2002 (*Restoration Resource and Investment Potential Final Report*, Mater Engineering,



For years while I was living in Flagstaff I worked with a collaborative group named the Diablo Trust that is an example of ranchers and environmentalists...working together. That group is still together and still serving as a model of the effectiveness of diverse people working toward shared goals.

*Dan Dagget, author and founding member of Diablo Trust*



July, 2002). The results of the Mater study identify a number of products that can be produced with small diameter material.

Ponderosa pine, particularly small-diameter material, is generally not known for great structural qualities. However, new technologies are emerging that can efficiently process small-diameter ponderosa to make products competitive with higher grade species. For example, fiber reinforced polymer (FRP) laminated beams (aka “glulams”) use a thin layer of Kevlar™ fiber laminated into the beam layers to significantly increase beam strength. According to the Mater report, initial tests suggest that this could allow the use of lower grade lumber such as ponderosa pine to produce a glulam beam equivalent in strength to a Douglas fir glulam. Further testing will be required to demonstrate the structural suitability of this product. With the use of new-generation industrial adhesives, small-diameter pine can be also used in the manufacturing of finger-joint studs and other dimensional construction grade materials as well.

Other emerging processes show promise for hardening and increasing the fire resistance of ponderosa pine. A product known as Indurite™ uses a hardening process employing an environmentally-safe solution made from soy and corn starches in a process similar to traditional pressure-treating, but more environmentally friendly. The treatment process can be applied to softwood such as ponderosa pine to make flooring and furniture that would typically require the use of hardwood material. Boric acid can be incorporated into the treatment to increase fire resistance for applications where that would be beneficial.

A product known as Sorbilite™ is a manufactured plastic/wood composite that combines wood waste (i.e. sawdust, bark, wood chips) with recycled plastic to produce a solid material that can be molded into higher value products such as cabinet doors, furniture components, moldings, signs, and other items. The resulting products can be painted or finished with a laminated veneer and is somewhat similar to Masonite™. The process can utilize a variety of species.

The Flying M has experimented with the cutting and bundling of firewood and marketing it directly to grocery stores and convenience markets in northern Arizona. It turned out to be a low-margin proposition, because of high labor and transportation costs. They have also done some preliminary product development research into the manufacturing of fireplace logs with juniper chips. The product shows promise, but manufacturing has not yet begun due to a lack of financing for start-up and initial operational costs.

Arizona Public Service (APS) is exploring the possibility of converting the coal-fired Cholla Generating Station at Joseph City for co-firing with woody biomass. Small-scale niche industries could provide another market for wood material generated by thinning and restoration projects such as the manufacturing of custom furniture and signs, and architectural components such as custom beams and vigas.

### Opportunities and Constraints

Although recent studies suggest that there are opportunities for utilizing small diameter wood material for various commercial products and uses, the overriding constraint to the development of a local wood products industry is the lack of a coordinated supply from the national forests in the region. Without a coordinated and consistent supply of raw materials, investors are not willing to build the necessary processing and manufacturing facilities.



(top) Piñon pine.  
(above) Ponderosa pine.



In order to increase investor confidence, resource offerings must be coordinated within the Forest Service (i.e. coordinated between individual ranger districts within a forest, as well as between different national forests in the region), and the resource offering must be relatively consistent over time. Since the Forest Service is the main source of material needed to support a wood products industry in the region, there is little likelihood of such an industry developing without the Forest Service making some fundamental changes in management practices in order to implement a more coordinated resource offering. The GFFP has initiated discussions with the different national forests in the area to promote the concept of a “Coordinated Resource Offering Protocol” (CROP) in order to address this issue and raise investor confidence in establishing a local wood products industry (*A CROP Pilot Project Design and Implementation Project for the Greater Flagstaff Forests Partnership*, Mater Engineering, March, 2004).

On the speculative side, if such an industry does develop at some point, there may be an opportunity to market “green” products originating from raw materials generated by forest health and range restoration projects. There is a huge market in Arizona and surrounding states for home construction and remodeling components, and there is a growing sustainable building movement including a trend of major retailers to market certified “green” wood products. The wood products discussed in this plan are examples of sustainable technologies in the context of harvesting for forest health, watershed and grassland restoration.

### Regulatory Issues/Permits

Regulatory issues and permits with respect to wood products can be divided into two categories. The first category would be related to the harvesting of the raw materials, and the second would be related to the development of processing and manufacturing facilities. County zoning authority is the main regulatory issue on private lands, and applies to state trust lands as well, but does not apply to federal lands.

The harvesting of wood resources on private land, including thinning and other treatments, requires virtually no regulatory agency approvals. Similar projects on state trust land and national forest land obviously require compliance with the respective agency’s planning, permitting, and land management processes. The removal of wood products on the national forest typically involves competitive bidding on a timber sale or “goods-for-service” contract.

Under Coconino County zoning regulations, lumber mills can be established in the General Zone with approval of a conditional use permit. A biomass-fueled generating station would also be subject to a conditional use permit in any zone in which it would be proposed. Manufacturing and lumber processing plants would require industrial zoning, with a conditional use permit required under Light Industrial (M-1-10,000). Lumber mills and processing plants are permitted uses in the Heavy Industrial (M-2-6000) Zone.

There is currently no industrial zoning in the Diablo Canyon RPA study area. There is little potential for industrial zoning in the study area, with the possible exception of some potential sites near the I-40 corridor. A more likely scenario would be for processing and manufacturing facilities to be located either in Winslow or the greater Flagstaff area where the appropriate zoning and physical infrastructure already exists to support such uses.



(top) Commercial fuelwood processing.  
(above) Woody biomass material can be used for electrical power generation.

## WOOD PRODUCTS

### GOAL

Encourage development of local industries that utilize wood resources derived from range and watershed improvement projects on ranchlands.

### POLICIES

The County supports the economic utilization of wood resources as a means of offsetting the costs of range and watershed restoration projects and as a means of promoting economic diversification of the ranches.

Wood harvesting for economic uses shall primarily be driven by ecosystem health and habitat considerations.

The County encourages the restoration of grassland ecosystems and native habitats and the reduction of unnatural piñon/juniper woodland encroachment.

### Next Steps

The development of a commercial wood products business on the ranches is dependent upon the development of a local wood products industry that would be the market for material harvested from the ranch lands. The development of that industry is largely beyond the control of the ranches. It is dependent upon some fairly significant changes in national forest management practices to facilitate coordinated and consistent resource offerings from multiple ranger districts and forests in northern Arizona.

Another possibility, also largely beyond the control of the ranches, is the construction of a biomass electrical generating station in close proximity to the ranches. A biomass plant could potentially utilize chipped wood material from range restoration projects. However, depending on the plant's location, fuel needs, and business model, it may or may not be an economically beneficial market for the ranches.

There are a variety of grant programs from various sources designed to help small scale wood products businesses become established. The USDA Forest Products Laboratory in Madison, Wisconsin, for example, has a total of \$4.4 million available for grants in FY 2005 to promote the adoption of technologies utilizing biomass and small-diameter materials. Individual awards are between \$50,000 and \$250,000. The grant program is designed to help revitalize rural communities with depressed forest-based economies by helping establish small-scale business enterprises that make use of woody biomass and low-valued trees. Funding from this or a similar program could possibly finance the initial operational costs of the manufactured fireplace log product under consideration by the Flying M. The Diablo Canyon RPA ranches should consider contracting with or hiring a grant writer to pursue funding opportunities.

Another source of technical and business development assistance is the Southwest Sustainable Forests Partnership (SWSFP). The SWSFP is a collaborative partnership consisting of local, state, federal, and tribal governments that have joined together to forge a connection between forests, communities, and forest-based industries in Arizona and New Mexico. Their mission is to help local forest product businesses develop and grow by providing technical assistance, entrepreneurial development, and grant funding. The SWSFP is a potential resource that could help develop and promote wood products businesses associated with the ranches. Their contact information is in the appendix.

